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## APPENDIX I: EMERGENCY PLANNING AND RESPONSE

The purpose of this appendix is to summarize emergency planning and response activities established to mitigate the consequences of major emergencies and natural disasters at the Lawrence Livermore National Laboratory (LLNL). This summary covers the following topics: regulatory background, which identifies the Federal regulations upon which the emergency-preparedness programs are based; Federal, state, and local interfaces and responsibilities, which describes LLNL involvement with state and local emergency planning organizations as well as the responsibilities of government agencies; and LLNL emergency preparedness, which discusses the emergency management team, emergency categorization, notifications and communications, facilities and equipment, and transportation-related emergency response.

It is not possible to predict whether intentional attacks would occur at LLNL or at other critical facilities, or the nature of the types of attacks that might be made. Nevertheless, NNSA reevaluated scenarios involving malevolent, terrorist, or intentionally destructive acts at LLNL in an effort to assess potential vulnerabilities and identify improvements to security procedures and response measures in the aftermath of the attacks of September 11, 2001. Security at NNSA and DOE facilities is a critical priority for the Department, and it continues to identify and implement measures designed to defend against and deter attacks at its facilities. In March 2004, DOE's Office of Safeguards and Security Evaluations completed a special department-wide review at LLNL that included performance testing LLNL's Protective Force. LLNL was given a rating of "Effective Performance", which is the highest one possible.

Substantive details of terrorist attack scenarios and security countermeasures are not releasable to the public, since disclosure of this information may be exploited by terrorists to plan attacks.

### I.1 REGULATORY BACKGROUND

Federal regulations require establishing emergency planning and response to radiological or hazardous incidents. These regulations include 40 *Code of Federal Regulations* (CFR) Parts 355 and 265 and §302.6, and 29 CFR §1910.120, which deal with *Superfund Amendments and Reauthorization Act* Title III, emergency planning and notification, contingency planning, release reporting, hazardous waste operation, and emergency response. In addition, the U.S. Department of Energy (DOE) provides specific direction in DOE O 151.1A and 232.1A for implementing emergency preparedness for a variety of events, including earthquakes.

To meet Federal requirements, LLNL has developed site-wide emergency preparedness plans to integrate all aspects of response.

### I.2 FEDERAL, STATE, AND LOCAL INTERFACES AND RESPONSIBILITIES

In the event of an emergency at LLNL, a number of resources are available for mitigation, re-entry, and recovery activities associated with the response. This section briefly describes those Federal, state, and local agencies that may be involved in a response. In addition, the interfaces between LLNL and these agencies are discussed, including formally documented agreements.

The LLNL Fire Department is the primary point of contact with offsite agencies for emergency planning, preparedness, and response. The LLNL Fire Department has frequent ongoing contacts with local response agencies, through mutual-aid agreements and actual response. These contacts include, but are not limited to, offsite planning coordination with LLNL, interagency meetings, and information transfer. The LLNL Public Affairs Office is the primary point of contact with offsite agencies in the areas of public education.

Memorandums of Understanding (MOUs) and mutual-aid agreements exist among specific functional LLNL organizations and departments and their counterparts. The Safeguards and Security Department develops and signs security/law enforcement-related MOUs for LLNL. The LLNL Fire Department develops and signs MOUs related to the fire/emergency medical services/hazardous materials (HAZMAT) arena. The Hazards Control Department and the Health Services Department develop and sign MOUs associated with local medical facilities.

In addition, the National Nuclear Security Administration (NNSA) maintains a number of emergency response assets and interagency agreements with other Federal agencies that may be called upon for support.

### **I.2.1 National Nuclear Security Administration**

NNSA is the lead Federal agency for emergencies at LLNL, except for certain security situations when the Federal Bureau of Investigation (FBI) may be the lead. The resources available from NNSA are extensive and include those from Federal agencies that are part of the Federal Radiological Emergency Response Plan. These assets include:

- Aerial Monitoring System
- Atmospheric Release Advisory Capability
- Accident Response Group
- Federal Radiological Monitoring and Assessment Center
- Nuclear Emergency Search Team
- Radiological Assistance Program
- Radiation Emergency Assistance Center/Training Site

The LLNL Emergency Director initiates the request for support of NNSA/Livermore Site Office assets, depending upon the nature and severity of the event. These requests are approved by NNSA/DOE-Headquarters via NNSA/Livermore Site Office.

### **I.2.2 Other Federal Agencies**

The FBI maintains primary jurisdiction under the *Atomic Energy Act* (42 U.S.C. §2011 et seq.) for incidents involving the protection of special nuclear material and any crime involving Federal property. In an emergency situation involving security incidents, the FBI will be notified, as required, by the Safeguards and Security Department and may be provided workspace in the Emergency Operations Center (EOC) or the Tactical Operations Center (TOC).

### **I.2.3 State Government**

The State of California will be notified when an operational emergency is declared at LLNL. The state has resources and personnel to assist LLNL during a major emergency that involves the release of hazardous or radioactive materials to offsite locations. The Alameda County Office of Emergency Services takes the lead for offsite response and would coordinate with the state for assistance and resources.

The State of California's emergency assistance is based on a statewide mutual aid system designed to ensure that additional resources are provided to and among local jurisdictions whenever their own resources are committed or inadequate. The basis for this system is the California Disaster and Civil Defense Master Mutual Aid Agreement (Office of Emergency Services 1950). This agreement was developed in 1950 and adopted by California's incorporated cities and 58 counties. It creates a formal structure coordinated by the state within which each local jurisdiction retains control of its own personnel and facilities but can give and receive assistance whenever it is needed. State agencies are obligated to provide available resources to assist local jurisdictions in emergencies at the direction of the Governor's Office of Emergency Services (OES).

The State of California instituted the Standardized Emergency Management System on December 1, 1996 (California Code of Regulations, Title 19, Division 2, Chapter 1). This system is used for coordinating state and local emergency response in California. Under the Standardized Emergency Management System, the state's assistance is accessed by requesting resources through the operational area coordinator and the Alameda County Sheriff's OES. Fire and mutual-aid resources are requested through the local and state mutual aid system.

The California Governor's OES is the lead state agency in any response to assist Alameda County and is responsible for making statewide resources available.

The California State Department of Health Services provides trained personnel to assist with monitoring and decontaminating personnel, evaluating the extent of any contamination, and monitoring offsite ingestion pathways.

#### **I.2.3.1 Governor's Office of Emergency Services**

LLNL has several MOUs with the Governor's OES. These MOUs include an agreement for California disaster and civil defense, an agreement for temporary transfer of vehicular equipment, and an agreement for use of radio equipment (LLNL 2003a).

Coordinators, designated by state agencies, assist California's emergency management staff headed by the director of OES or a designated representative. OES is the lead state agency for all aspects of emergency management, including planning, response coordination, recovery coordination, mitigation efforts, and training.

### **I.2.3.2      *California Highway Patrol***

Upon request, the California Highway Patrol (CHP) supports the Safeguards and Security Department by responding with personnel and equipment, including helicopter support, when warranted. The CHP, when responding to an emergency request for assistance to LLNL, will render support to the Safeguards and Security Department by maintaining traffic supervision and control over roadways to LLNL, operating under a Joint Incident Command System. The nature of the Emergency Response Agreement between LLNL and the CHP includes assistance calls and assistance requests under the state Law Enforcement Mutual Aid Plan (Office of Emergency Services 2003).

### **I.2.4      *Local Organizations***

#### **I.2.4.1      *Alameda County Sheriff's Office of Emergency Services***

The Alameda County Sheriff's OES is the lead offsite response coordination agency for major emergency and disaster situations at or affecting the Livermore Site. The fire chief at LLNL is the point of contact for those requests for resources for mutual aid systems, such as fire or law-enforcement mutual aid.

If the emergency situation requires that the general public be warned, the emergency public information is issued by the cognizant local agency, such as the cities of Livermore or Tracy or counties of Alameda or San Joaquin, depending upon the area affected by the incident.

#### **I.2.4.2      *County Sheriff's Department***

Upon request, the Alameda County Sheriff's Department responds with personnel and equipment, including a special response unit when warranted, to support the Safeguards and Security Department. Support activities are coordinated by the Safeguards and Security Department representative in the TOC and may include assistance in responding to security threats and assistance in evacuating the site. The emergency response agreement between the Alameda County Sheriff's Department and LLNL covers assistance calls and assistance requests under the state Law Enforcement Mutual Aid Plan.

#### **I.2.4.3      *San Joaquin County Office of Emergency Services***

The San Joaquin County OES serves in the same capacity as the Alameda County OES for Site 300.

#### **I.2.4.4      *San Joaquin County Sheriff's Department***

Upon request, the San Joaquin County Sheriff's Department responds with personnel and equipment to support a Site 300 emergency or an immediate officer rescue or backup. The

emergency response agreement between the San Joaquin County Sheriff's Department, LLNL, and Site 300 managers covers assistance calls and assistance requests under the state Law Enforcement Mutual Aid Plan.

#### **I.2.4.5      *Twin Valley Agreement for Mutual Fire Assistance***

In addition to the State of California master mutual-aid agreement for fire services and the Alameda County fire mutual aid response plan, LLNL is a signatory to the Twin Valley agreement for mutual fire assistance. This agreement confirms that, upon request, the associated fire services will respond with personnel and equipment to support LLNL emergencies. These agencies, in responding to an emergency request for assistance, render support to the Livermore-Pleasanton Fire Department (LLNL 2003a).

#### **I.2.4.6      *Livermore-Pleasanton Fire Department***

The Livermore-Pleasanton Fire Department is responsible for coordinating disaster planning and emergency response activities for the city of Livermore. The Livermore-Pleasanton Fire Department coordinates its activities with the Alameda County OES, the primary offsite agency for emergencies involving radioactive material. The Livermore-Pleasanton Fire Department assists other responding agencies in locating and providing needed equipment and resources and in updating city officials. In addition, if the primary communication links become unavailable, the Livermore-Pleasanton Fire Department assists in the activation of the amateur radio emergency services network.

#### **I.2.4.7      *Livermore Police Department***

The Livermore Police Department may be requested to support a LLNL emergency or an immediate officer rescue or backup. In responding to an emergency request for assistance, they render support to the Safeguards and Security Department by responding to security threats, controlling traffic, controlling facility access, and assisting with evacuation of the site. The Safeguards and Security Department representative, or designee, in the TOC coordinates support activities. The law enforcement assistance agreement between Livermore Police Department and LLNL covers assistance calls and assistance requests under the state Law Enforcement Mutual Aid Plan.

#### **I.2.4.8      *Tracy Fire Department***

The Tracy Fire Department is responsible for coordinating disaster planning and emergency response activities for the city of Tracy. The Tracy Fire Department coordinates its activities with the San Joaquin County OES, the primary offsite agency for emergencies involving radioactive material in San Joaquin County.

#### **I.2.4.9      *Offsite Medical Facilities***

MOUs are in place with Valley Care Medical Center and Eden Medical Center to provide medical support and to assist the LLNL Health Services Facility, if needed. These facilities have the capability to assist in the treatment of contaminated or injured victims resulting from a hazardous material release at LLNL (LLNL 2003a).

#### **I.2.4.10      *Valley Emergency Preparedness Working Group***

The Valley Emergency Preparedness Working Group has been reorganized to facilitate the sharing of emergency preparedness and planning information among LLNL and those offsite agencies and entities responsible for emergency response and protection of the public and the environment, with whom LLNL may interact during emergency situations.

The mission of the Valley Emergency Preparedness Working Group is to share information and discuss common solutions to challenges in planning for response to scenarios resulting from, or potentially affecting, NNSA operations at LLNL, including Site 300.

### **I.3              LAWRENCE LIVERMORE NATIONAL LABORATORY EMERGENCY PREPAREDNESS**

The LLNL Emergency Plan (LLNL 2003a) documents the emergency management procedures and responsibilities for the Livermore Site. The Site 300 Emergency Plan (LLNL 2003c) documents the emergency management procedures and responsibilities for Site 300. The focus of emergency planning and preparedness outlined in these manuals is to provide a coordinated response to incidents involving more than one of the basic emergency service elements or incidents that may be a threat to the health and safety of personnel and the general public. These incidents include, but are not limited to, civil disturbance, fire, explosion, incidents involving hazardous materials and waste, natural disasters, terrorism, and bomb threats.

#### **I.3.1              Emergency Management Team Organization and Resources**

##### **I.3.1.1          *Emergency Management Team***

The LLNL director is responsible for the safe operation of LLNL. Two deputy directors, a laboratory executive officer, 12 associate directors, and a chief financial officer assist the director in the mission to provide guidance and direction for LLNL. The LLNL Director has the authority and responsibility to ensure LLNL complies with applicable DOE orders and regulations as well as other Federal, state, and local regulations.

The Director has delegated responsibility for operational activities, including emergency management, to the Deputy Director for Operations. The Safety and Environmental Protection Associate Director, as chair of the Emergency Preparedness Management Committee, is responsible for management oversight of emergency preparedness and integration with other environment, safety, and health (ES&H) activities, including emergency management.

The Hazards Control Department head is responsible for ensuring that emergency planning, including procedures and tracking systems, training, drills, readiness and maintenance of the EOC, hazard surveys and assessments, and other planning aspects, are in place. Directorate organizations are responsible for commitments, closure of commitments, and corrective actions.

The LLNL Director has also delegated to the LLNL emergency duty officers (LEDOs) the responsibility for protecting the health and safety of LLNL employees, the public, and the environment and for maintaining the security of the facility during any emergency.



LEDOs are senior LLNL managers who have accepted the responsibility for managing emergencies requiring more than a single-facility response. During emergencies, field operations will be under the authority of the incident commander, typically the LLNL Fire Department senior officer initially responding to the scene, who will consult with a LEDO.

The Emergency Preparedness Program addresses strategic emergency planning, preparedness, response, resource management, readiness assurance, and associated maintenance activities at LLNL. The organization specifically responsible for the initial response, ongoing response, and mitigation of an operational emergency at LLNL is the emergency management team, composed of senior managers from various LLNL departments. This organization assembles and becomes operational at the direction of the on-duty LEDO.

### **I.3.1.2      *Emergency Direction and Control***

During an emergency, defined for this purpose as an event requiring activation of the EOC, the lead is taken by the on-duty LEDO who becomes the emergency director. The first off-duty LEDO to arrive becomes the response manager. The balance of the emergency management team is comprised of department heads from Environmental Protection, Hazards Control, Plant Engineering, Public Affairs, Safeguards and Security, and Health Services. The emergency management team will support the incident commander, and keep the Director's office informed of the event. The emergency management team is supported by the Operation Support Centers (OSCs), described in Section I.3.1.5.

### **I.3.1.3      *Emergency Management Operations***

When the emergency management center is activated, the emergency management team and staff from the OSC will be assembled and become the emergency management team organization. The emergency management team is led by the on-duty LEDO, who maintains contact with the LLNL Director and staff. The emergency management team organization supports the incident commander.

### **Declaration of an Emergency**

An operational emergency will be declared when the LLNL Fire Department duty chief determines events or conditions require time-urgent response from outside the immediate or affected site or facility or area of the incident. Such events or conditions cause, or have the potential to cause, serious health and safety impacts to workers or the public, serious detrimental effects on the environment, direct harm to people or the environment as a result of degradation of security or safeguard conditions, or loss of control over hazardous materials. The LEDO is responsible for activating the EOC.

## **Activation of the Emergency Operations Center**

The LEDO will activate the EOC by notifying the Fire Dispatch Center. The on-duty dispatcher will engage the communicator, a digital call/paging system, to call the requested resources. A backup paging system is also available if the communicator becomes disabled. The LEDO declares the EOC operational when the required minimum staff has reported.

## **Emergency Response**

Resources available to the incident commander, LEDO, and emergency management team vary according to the parameters of the event.

## **Re-entry**

The incident commander will determine when a scene is stable and re-entry can occur. The incident commander will have support from the appropriate safety team.

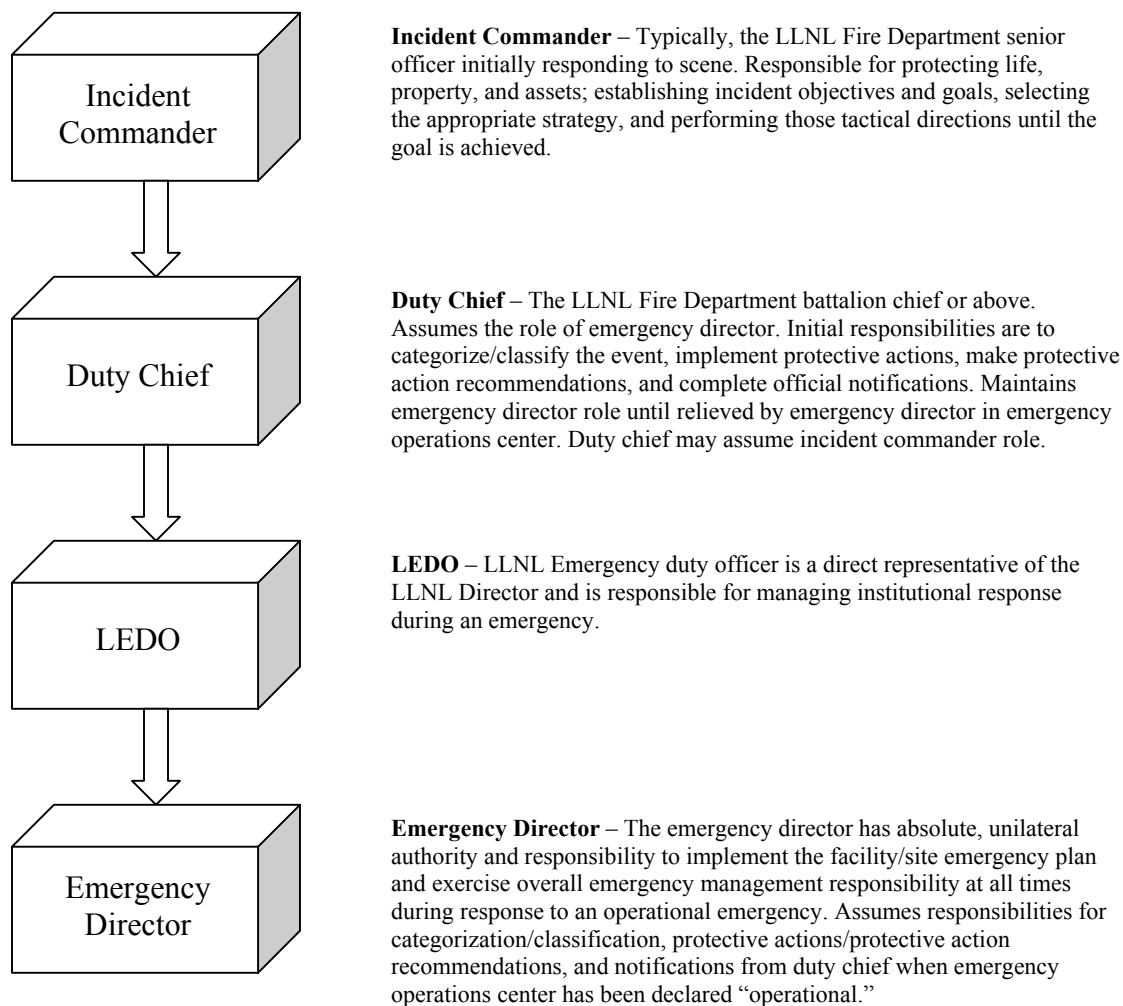
## **Emergency Termination**

The emergency will be terminated when the emergency condition is stabilized and/or the emergency management team and incident commander determine there is no longer a threat to employee safety, public safety, and the environment.

### **I.3.1.4      *Emergency Management Personnel***

#### **Incident Commander/Duty Chief**

The incident commander/duty chief gathers information sufficient to determine the categorization/classification of the event or situation, implement initial protective actions, and, if required, provide protective action recommendations to appropriate offsite authorities (Figure I.3.1.4–1).



Source: LLNL 2003a.

**FIGURE I.3.1.4–1.—Emergency Response Command and Control**

Upon categorization of an operational emergency, the incident commander/duty chief activates the appropriate level of the emergency response operation, initiates appropriate notifications, including the LEDO, and manages the emergency as the emergency director until relieved by the on-duty LEDO. A designated incident commander/duty chief is onsite or on call at all times and is responsible for managing institutional response during an emergency.

### **Laboratory Emergency Duty Officer/Emergency Director**

Upon activation of the EOC and appropriate OSCs, the on-duty LEDO serves as the emergency director. The LEDO/emergency director has full authority to provide management direction and response for the mitigation, recovery, and termination of all operational emergencies.

During localized operational emergencies at Site 300, the Site 300 manager or designated alternate serves as the emergency director. This emergency director coordinates the emergency

activities of site personnel and equipment and keeps the LEDO apprised at all times. The relationship between Livermore Site and Site 300 command and control is shown in Figure I.3.1.4–2.

### **Emergency Management Team**

An emergency management team is assembled at the EOC at the discretion of the LEDO. The team manages emergency operations and resources under the emergency director. Senior LLNL managers from each emergency service organization are designated to serve on the emergency management team. Operations commanders at their respective OSCs support the emergency management team.

Emergency management team members are described in the following sections.

#### ***Response Manager***

The response manager coordinates the emergency management team as directed by the emergency director. This person, who reports directly to the emergency director, is the first available off-duty LEDO.

#### ***Environmental Protection Department Representative***

A senior member of Environmental Protection Department (EPD) management advises the emergency director on environmental issues.

#### ***Hazards Control Department Representative***

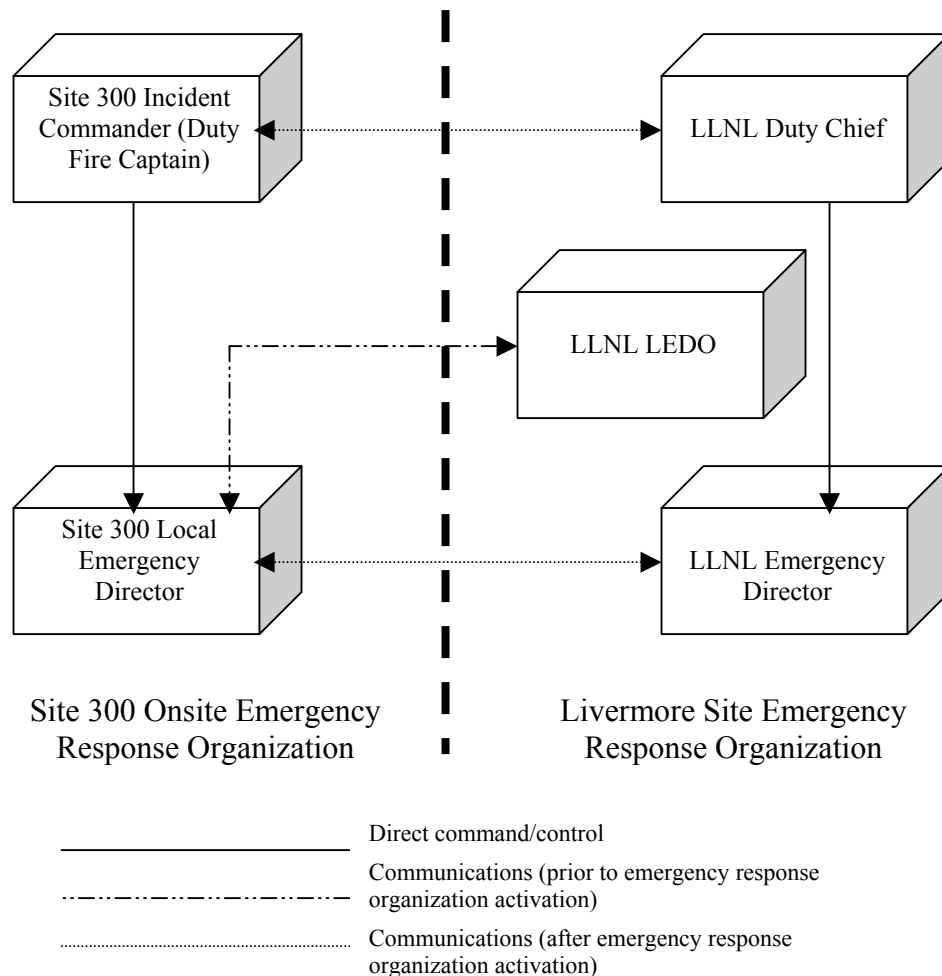
A senior Hazards Control manager advises the emergency director on life-safety matters, hazards and effects, and LLNL policy as it relates to safety.

#### ***Plant Engineering Department Representative***

A senior Plant Engineering manager will advise the emergency director on general plant operations of LLNL.

#### ***Public Affairs Department Representative***

A senior Public Affairs Office official, normally the public affairs office manager, will advise the emergency director on LLNL employee information, concerns, and announcements to onsite personnel. This official will also advise the emergency director on public information policy, liaison with offsite organizations with public affairs responsibilities, and preparation and release of statements. When the EOC is activated, this representative becomes the internal/external public affairs manager.



**FIGURE I.3.1.4–2.—Site 300 and Livermore Site Command and Control**

### ***Safeguards and Security Department Representative***

A senior Safeguards and Security Department manager will advise the emergency director on general security policy and operations.

### ***United States Department of Energy***

A senior manager from the NNSA/Livermore Site Office will serve as an advisor to the emergency management team.

### ***Emergency Operations Center Staff***

The EOC staff provides administrative/clerical support for the operation of the center. The staff consists of an EOC coordinator, a WebEOC operator, and administrative support.

### **I.3.1.5      *Operation Support Centers***

The OSCs are LLNL's technical support offices. They provide this support to their respective members of the emergency management team and manage their field and/or regulatory responses from these centers, which are located at various sites throughout LLNL. These centers are connected with the EOC via multiple communication systems. Individual OSC plans outline the operations specific to each OSC's response activities.

#### **Environmental Protection Department**

The EPD staff is responsible for evaluating the emergency situation to determine potential or actual impacts to the environment; meeting regulatory reporting requirements; marshaling necessary personnel to assist in the response, cleanup, and disposal of hazardous substances; and notifying Federal, state, and local agencies on environmental issues.

#### **Hazards Control Department**

The Hazards Control Department provides response teams with expertise in explosives safety, fire protection, radiation safety, industrial hygiene, industrial safety, and criticality safety. Action and status information is summarized and relayed to and from the EOC.

#### **Health Services Department**

The Health Services Department provides medical management of incident casualties, including medical decontamination.

#### **Plant Services**

The Plant Services Department coordinates and controls personnel, equipment, and resources for plant maintenance and utilities. Action and status information is summarized and relayed to and from the EOC.

#### **Public Affairs Office**

The Public Affairs Office coordinates and directs the release of information to employees and the public. It also functions as the focal point for outside media inquiries associated with the emergency and coordinates activities at the joint information center, if activated.

#### **Safeguards and Security Department**

The TOC supports LLNL's emergency management team in operational emergency response. If the emergency is security driven, the center serves as the primary focal point for the incident commander. The TOC also serves as the point of contact for outside law enforcement agencies.

#### **Site 300**

The Site 300 EOC coordinates the activities of Site 300 and reports those results to the LEDO, or the emergency director if the Livermore Site EOC is operational. In addition to the emergency

response resources integral to Site 300, additional support may be drawn from the Livermore Site.

### **National Nuclear Security Administration/Livermore Site Office Emergency Communications Center**

The emergency communications center (ECC) oversees the site response and provides support, assistance, and guidance to the EOC. The ECC also provides information to NNSA/Livermore Site Office management, the NNSA/DOE-Headquarters EOC, and members of the press and coordinates with other Federal agencies on a local level, as necessary.

#### **I.3.1.6 Other Emergency Response Assets**

##### **Field Monitoring Teams**

When required, the Hazards Control Department and the EPD provide onsite (outside the immediate incident scene) and offsite monitoring capabilities through the use of a pool of team members. When an emergency classification of site area emergency or general emergency is declared, the field monitoring team will be called in to supply real-time monitoring data to verify the results of the analytical models. Field monitoring data are also used to support the adequacy of emergency response actions taken to protect employees and the public. The emergency director and/or consequence assessment analyst will request the activation of the field monitoring team through the Hazards Control Department OSC.

##### **Technical Support**

A LLNL health services representative may be requested to advise the emergency management team on issues including health implications of emergency situations, triage, treatment, and transport of injured individuals.

The National Atmospheric Release Advisory Center (NARAC) may be requested to advise the emergency management team on the implications of toxic or radiological releases. NARAC, a part of LLNL's Energy and Environment Directorate, supports DOE, the U.S. Department of Defense (DoD), and LLNL programs and operations, including the LLNL emergency response organization.

Using professional staff, numerical models, computer systems, and network links about the country, NARAC can transmit information about an accident, exercise, or potential accident in the form of graphic plots of contours of dose and/or air concentration and ground deposition of toxic materials. This service can also be used to support a DOE-authorized offsite response.

##### **Credibility Assessment**

A credibility assessment team member may advise the emergency management team through the Safeguards and Security Department manager about the credibility of any potential incident such as terrorist activities or bomb threats.

### **I.3.1.7      *Offsite Response Interfaces***

Formal and informal relationships exist between LLNL and external emergency planning and response agencies and organizations. Where possible, interrelationships with Federal, state, and local organizations are prearranged and documented in formal plans, agreements, and understandings for mutual assistance detailing the emergency support to be provided.

These agencies and organizations include:

- DOE
- FBI
- California Governor’s OES
- California Department of Health Services
- CHP
- Alameda County OES
- Alameda County Sheriff’s Office
- San Joaquin County OES
- San Joaquin County Sheriff’s Department
- Twin Valley Agreement Mutual Fire Assistance
- Livermore/Pleasanton Fire Department
- Livermore Police Department
- Offsite medical facilities

### **I.3.2      *Emergency Categorization and Classification***

#### **I.3.2.1      *Operational Emergencies***

Operational emergencies are unplanned, significant events or conditions that require time-urgent response from outside the immediate affected site, facility, or area of the incident. Such emergencies are caused by, involve, or affect LLNL facilities, sites, or activities.

#### **I.3.2.2      *Operational Emergencies That Require Further Classification***

Operational emergencies are classified as indicated below, in order of increasing severity. They indicate a specific threat to workers and the public due to the release or potential release of significant quantities of radiological and nonradiological hazardous materials from LLNL.



## **Alert**

An alert would be declared when events are predicted, are in progress, or have occurred that result in one or more of the following:

- An actual or potential substantial degradation in the level of control over hazardous materials, radiological and nonradiological, such that the radiation dose from any release of radioactive material or concentration in air from any release of other hazardous material would exceed the applicable protective action guide (PAG) value beyond 100 feet but not greater than the facility boundary (about 330 feet).
- An actual or potential substantial degradation in the level of safety of a facility or process that could, with further degradation, produce a site area emergency or general emergency.

## **Site Area Emergency**

A site area emergency would be declared when events are predicted, in progress, or have occurred that result in one or more of the following situations:

- An actual or potential major failure of functions necessary for the protection of workers or the public. The radiation dose from any release of radioactive material or concentration in air from any release of other hazardous material that would exceed the applicable PAG or emergency response planning guideline (ERPG) values beyond the facility boundary or exclusion zone boundary. The PAG or ERPG value would not be exceeded at or beyond the site boundary.
- Actual or potential major degradation in the level of safety or security of a facility or process that could, with further degradation, produce a general emergency.

## **General Emergency**

A general emergency would be declared when events are predicted, in progress, or have occurred that result in one or more of the following situations:

- Actual or imminent catastrophic reduction of facility safety or security systems with potential for the release of large quantities of radiological or nonradiological hazardous materials to the environment.
- The radiation dose from any release of radioactive material or concentration in air from any release of other hazardous material would exceed the applicable PAG or ERPG value at or beyond the site boundary.

### **I.3.2.3 *Operational Emergencies Not Requiring Further Classification***

In some cases, an event may occur that, while it does not meet the criteria for a classifiable operational emergency, does pose a concern for personnel health and safety, environmental impact, or security. In general, an operational emergency not requiring further classification is defined as a health and safety, environmental, safeguards and security, or offsite transportation

event that does not meet the criteria for an alert, as described above. An example would be discovery of hazardous material contamination from past NNSA operations that is causing or may reasonably be expected to cause uncontrolled personnel exposures exceeding protective action criteria.

### **I.3.3        Notifications and Communications**

Protocols are in place for the prompt initial notification of LLNL emergency response personnel, onsite personnel, and offsite emergency response personnel/organizations, including NNSA/Livermore Site Office, NNSA/DOE-Headquarters, and other Federal, state, and local organizations. Communication systems are also in place to provide for continuing effective communication among the emergency response organizations, both offsite and onsite, throughout an operational emergency.

#### **I.3.3.1        Notifications**

##### **Onsite/Offsite Notifications**

When a potential operational emergency not involving hazardous materials occurs, the fire incident commander or security watch commander is responsible for notifying emergency response personnel and potentially affected onsite personnel of initial protective actions and providing the LLNL Fire Department duty chief with a briefing. The duty chief may declare an operational emergency and initiate notifications, including appropriate offsite authorities and the LEDO.

If the operational emergency involves or has the potential to involve hazardous materials, the duty chief may further classify the event as an alert, site area emergency, or general emergency, brief the LEDO, call out the emergency response organization, and initiate offsite agency notifications. The LEDO notifies the LLNL Director's office and other applicable senior LLNL and University of California Office of the President management.

If a site area emergency or general emergency has been declared, the entire emergency response organization and all supporting emergency response facilities, with the exception of the joint information center (at site area emergency), will be automatically activated. If an operational emergency not requiring further classification or alert has been declared, the level of activation will be determined by the LEDO. The emergency response organization will be called out via the communicator, a personal computer-based, digital system that activates both telephones and pagers. A manual call-out backup system, using fire dispatch and/or the occurrence reporting duty officer, is also available. The duty chief, acting as the emergency director, has the responsibility for offsite notifications until the EOC has been declared “operational” and the on-duty LEDO has assumed the role of emergency director and accepts responsibility for all subsequent notifications.

##### **Offsite Agency Notification**

The offsite agencies in the following listing will be notified within 15 minutes of the declaration of an operational emergency involving hazardous materials (alert, site area emergency, or

general emergency). In an operational emergency not involving hazardous materials, offsite agency notifications will be accomplished within 30 minutes.

Offsite notifications are made to:

- NNSA/Livermore Site Office duty officer
- Livermore Police Department
- Livermore/Pleasanton Fire Department
- Alameda County OES
- San Joaquin County OES
- State of California OES Warning Center
- Sandia National Laboratories/California
- NNSA/DOE-Headquarters EOC duty officer
- Tracy Fire Department
- Tracy Police Department

Followup notifications will be provided on an hourly basis (from the previous notification), or whenever the classification of the emergency event changes, protective action recommendations are revised, or the emergency has been terminated.

Each of the agencies listed above has provided primary and backup numbers to be called for initial notifications, in addition to facsimile numbers to receive followup hard copy. These numbers are reviewed and verified on a quarterly basis.

Initial notifications are made by the duty chief using the communicator. Typically, the duty chief will complete the notification form, and transmit the information into the communicator, which sends the information simultaneously to all offsite agencies. If the communicator malfunctions, the duty chief can verbally provide the notification information to fire dispatch and it can be manually transmitted to designated agencies.

After the EOC has been declared “operational,” the emergency director assumes responsibility for subsequent notifications. The EOC coordinator will oversee the notification process within the EOC.

When notified of an emergency at the Livermore Site, the Alameda County OES notifies other appropriate State of California entities. The Alameda County OES also coordinates and authorizes use of the State of California's emergency broadcast system.

When notified of an emergency at Site 300, the San Joaquin County OES notifies other appropriate State of California entities. The San Joaquin County OES also coordinates and authorizes use of the State of California's emergency broadcast system.

### **Department of Energy Assets**

When there is a need for existing DOE assets to support the emergency response, the emergency director or response manager will make a request through the NNSA/Livermore Site Office emergency management team member or duty officer.

### **National Nuclear Security Administration Field and Headquarter Notifications**

Upon categorization of an operational emergency and/or declaration of a classified emergency, the NNSA/Livermore Site Office duty officer and the DOE-Headquarters EOC duty officer are notified, via the communicator, as a part of the official offsite notification process. The NNSA/Livermore Site Office duty officer and NNSA/DOE-Headquarters will continue to receive subsequent notifications and updates throughout the emergency.

#### **I.3.3.2        *Communications***

Reliable and redundant communications systems provide LLNL the means to notify Federal, state, and local response agencies and provide direction and control of the emergency response organization. LLNL EOC and ECC have the capability for secure communications with the NNSA/DOE-Headquarters EOC.

### **Communications with Offsite Agencies**

The primary communications system for official offsite notifications is the communicator. This is a PC-based digital communications system. If the communicator fails, independent telephone systems allow for completion of notifications. The communicator is also used to call LLNL emergency response organization personnel via pager and/or telephone.

### **Other Lawrence Livermore National Laboratory Communications Systems**

Communications requirements fall into three general categories:

- Emergency instructions to onsite workers
- Initial notifications of emergency response organizations
- Operational communications between command centers and field response elements

The dedicated evacuation voice/alarm system is the primary communications tool used to notify LLNL workers of expected protective actions and additional general information. Site 300 notifications are through the administrative building page system or trunked radio.

Other communications systems include the LLNL telephone system, a building paging system, the LLNL radio station, a digital paging system, an emergency vehicle public address system,

and other computer communications systems. Communications among emergency responders and from the incident scene to the incident commander/duty chief are maintained.

When the emergency response facilities are operational, communications between the EOC and the OSCs, including the joint information center will be established to allow participants to review information in real time. LLNL maintains backup communications systems for intra-facility communications.

Each communications system or network is maintained in a state of readiness through regularly scheduled operational tests. These tests and their periodicity, as well as communications issues identified during tests, drills, and exercises, are documented in action reports and tracked to resolution.

### **I.3.4 Emergency Facilities and Equipment**

#### **I.3.4.1 *Emergency Facilities***

LLNL has emergency facilities and equipment to support the planning for, response to, and mitigation of operational emergencies.

#### ***Emergency Operations Center***

The EOC is the coordination and control point for all operational emergency efforts. It provides a location and a system from which the emergency director and emergency management team assess, evaluate, coordinate, and direct emergency response activities. It is the focal point for emergency notifications and reports and for liaison with Federal, state, and local response organizations.

#### ***Emergency Response Facilities***

LLNL maintains two fire stations, which are staffed 24 hours a day. Fire Station No. 1 is located on the Livermore Site, just inside the South Main Gate in Building 323. The station houses 14 pieces of fire apparatus; 24 firefighters, 8 on duty each shift; the Emergency Management Division administration; occurrence reporting; and support staff. Fire Station No. 2 is located at Site 300 in Building 890. The facility houses 3 pieces of fire apparatus and 12 firefighters, 4 on duty each shift.

#### ***Operations Support Centers***

The OSCs provide support to their respective members of the emergency management team and manage their field and/or regulatory responses from these centers.

#### ***Decontamination Center***

The health services facility houses a decontamination center.

***Medical Facilities***

The Livermore Site has an occupational medical center with a decontamination facility. This facility is staffed Monday through Friday during normal working hours. LLNL Fire Department paramedics are on duty 24 hours a day. A satellite clinic at Site 300 is staffed by a registered nurse during normal working hours. The registered nurse provides basic health services and first aid.

***Security Tactical Operations Center***

In the event of an emergency, security will activate the TOC, a master coordination and control point for all security-related operational emergency efforts.

**I.3.4.2      *Emergency Equipment*****Communications Equipment**

The LLNL Fire Department and the Safeguards and Security Department operate dispatch centers and monitor one another's systems. All security personnel and firefighters are connected to their dispatch centers via hand-held radios and on mobile vehicle radios.

**Heavy Construction Equipment**

A complete list of heavy construction equipment is available from the Plant Engineering Department office or, during an emergency, from the Plant Engineering Department OSC. Plant Engineering's master equipment list includes this heavy construction equipment list.

**Alarm Equipment**

The Emergency Management Division emergency dispatch center and the Safeguards and Security central alarm center each monitor site-wide alarm systems.

**Rescue Team Equipment**

Rescue equipment maintained by the LLNL Fire Department meets National Fire Protection Association standards.

**Sanitation and Survival Equipment**

Each assembly point is equipped with basic first-aid supplies and additional supplies as determined by each programmatic organization.

**Transportation Equipment**

The Emergency Management Division operates three ambulances. Mini-motor coaches, operated by the Laboratory Fleet Management Department, can be used to transport injured employees if requested by the incident commander or the emergency director.

**Personal Protective Equipment**

Personal protective equipment meets National Fire Protection Association standards.

**Gas- and Liquid-Monitoring Equipment**

Air particulate samplers, air vapor samplers, hand-held combustible gas analyzers, and other equipment are maintained on site by the Hazards Control Department, EPD, and Plant Engineering Department.

**Damage Containment Equipment**

During an emergency, the incident commander and the Plant Engineering OSC have access to information on the availability of specific damage containment equipment.

**Fire-Fighting Equipment**

Fire-fighting equipment meets National Fire Protection Association standards. A complete list is maintained by the LLNL fire department.

**Emergency Power Equipment**

Buildings containing systems that may be needed during a power outage are supplied with emergency generators. Portable generators are available through both the Emergency Management Division and UTel Department.

**Logistic Support Equipment**

Logistic support equipment is maintained and supplied by the various emergency management team organizations and is available through the incident commander or OSC.

**I.3.5 Transportation-Related Emergency Response**

LLNL has emergency response plans and procedures for onsite transportation-related incidents involving hazardous and radioactive materials and wastes. Supplements to LLNL's ES&H Manual also address specific transportation concerns such as shipping of explosives and radioactive substances.

The Emergency Plan (LLNL 2003a) details specific activities for first response and evaluation of a hazardous spill, actual cleanup, records keeping, and subsequent followup to eliminate, if possible, repeat incidents. They also identify administrative roles and responsibilities, lines of authority for coordinating emergency response, and requirements for cleanup after a transportation-related accident.

**Packaging and Other Requirements**

Compliance with the U.S. Department of Transportation (DOT) and DOE requirements for packaging hazardous and radioactive materials reduces the impacts of any release of any hazardous or radioactive materials resulting from an accident. Packaging requirements for

hazardous and radioactive shipments are detailed in DOT (49 CFR Parts 100–199) and Nuclear Regulatory Commission (10 CFR Part 71) regulations. These requirements apply to shipments of hazardous and radioactive materials and wastes from LLNL.

In addition, hazardous and radioactive material packages are labeled and transport vehicles are placarded. Shipping papers and documentation requirements also provide necessary information for emergency response. These requirements are specifically identified in DOT regulations (49 CFR §172.600).



## I.4 REFERENCES

- 10 CFR Part 71      Nuclear Regulatory Commission (NRC), "Energy, Packaging and Transportation of Radioactive Material." *Code of Federal Regulations*, Office of the Federal Register, National Archives and Records Administration, U.S. Government Printing Office, Washington, DC, Revised January 1, 2003.
- 29 CFR §1910.1200      U.S. Department of Labor (DOL), "Labor, Occupational Safety and Health Standards, Hazardous Waste Operations and Emergency Response," *Code of Federal Regulations*, Office of the Federal Register National Archives and Records Administration, U.S. Government Printing Office, Washington, DC, Revised July 1, 2003.
- 40 CFR Part 265      U.S. Environmental Protection Agency (EPA), "Protection of the Environment, Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities" *Code of Federal Regulations*, Office of the Federal Register, National Archives and Records Administration, U.S. Government Printing Office, Washington, DC, Revised July 1, 2003.
- 40 CFR §302.6      EPA, "Protection of the Environment, Designation, Reportable Quantities, and Notification, Notification requirements," *Code of Federal Regulations*, Office of the Federal Register, National Archives and Records Administration, U.S. Government Printing Office, Washington, DC, Revised July 1, 2003.
- 40 CFR Part 355      EPA, "Protection of the Environment, Emergency Planning and Notification," *Code of Federal Regulations*, Office of the Federal Register, National Archives and Records Administration, U.S. Government Printing Office, Washington, DC, Revised July 1, 2003.
- 49 CFR Parts 100-199      United States Department of Transportation (DOT), "Hazardous Materials Regulations," *Code of Federal Regulations*, Office of the Federal Register National Archives and Records Administration, U.S. Government Printing Office, Washington, DC, Revised October 21, 2003.
- 49 CFR §172.600      DOT, "Transportation, Hazardous Materials Table, Special Provisions, Hazardous Material Communications, Emergency Response Information, and Training Requirements, Applicability and General Requirements," *Code of Federal Regulations*, Office of the Federal Register, National Archives and Records Administration, U.S. Government Printing Office, Washington, DC, Revised October 21, 2003.

42 U.S.C. §2011 et seq.	“Congressional Declaration of Policy,” Title 42, Public Health, Chapter 23, Development and control of Atomic Energy, Division A, Atomic Energy, Subchapter I, General Provisions, <i>United States Code</i> , Washington, DC.
California Code of Regulations, Title 19, Division 2, Chapter 1	“Office of Emergency Services, Adopted Regulations,” <i>California Code of Regulations</i> , Title 19, Division 2, Chapter 1, Office of Emergency Services, Sacramento, CA.
DOE O 151.1A	U.S. Department of Energy (DOE), <i>Comprehensive Emergency Management System</i> , U.S. Department of Energy, Washington, DC, November 1, 2000.
DOE O 232.1A	DOE, <i>Occurrence Reporting and Processing of Operations Information</i> , U.S. Department of Energy, Washington, DC, July 21, 1997.
LLNL 2003a	Lawrence Livermore National Laboratory (LLNL), <i>Emergency Plan</i> , UCRL-MA-113311, Rev. 6, Lawrence Livermore National Laboratory, Livermore, CA, January 2003.
LLNL 2003c	LLNL, <i>Site 300 Emergency Plan</i> , Lawrence Livermore National Laboratory, Livermore, CA, January 2003.
Office of Emergency Services 1950	Office of Emergency Services, <i>California Disaster and Civil Defense Master Mutual Aid Agreement</i> , California Governor's Office of Emergency Services, Sacramento, CA, Attested November 15, 1950.
Office of Emergency Services 2003	Office of Emergency Services, <i>Law Enforcement Mutual Aid Plan</i> , California's Governor's Office of Emergency Services, Sacramento, CA, 2003 ed.